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THE FEASIBILITY OF MANUFACTURING PUMPS IN SAVANNAH, GEORGIA

Prepared for

Forward Savannah

by

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Foreword

This report has been prepared as part of the extensive research and technical assistance program which the Industrial Development Division initiated in June of 1964 as part of the Forward Savannah program. Two professional staff members who reside in Savannah provide the staff nucleus for the diversified effort which is in process.

Since the emphasis of this effort is so strongly on action, this is one of the few published reports which will come out of the first year's work. Close correlation between analysis and implementation -- typified by a coordinated effort which resulted in passage of enabling legislation essential to certain long-range industrial potentials -- has characterized work to date.

This is the first specific product study to be readied for implementation. Others are in process, with a preliminary draft of one already in the hands of an interested company executive. Where sufficient interest is evidenced, special analyses will be prepared to adapt this and other analyses to the needs of individual companies.

The providing of technical services to established manufacturers has been a major focus of the program. Again, emphasis has been on results, not reports. The aim here is to help companies expand, diversify, or improve their operations so that they grow more rapidly.

Comments, questions, and requests for additional information are invited. Following long-standing practice, complete confidence will be maintained with regard to any firm's interest in securing additional data for its further analysis.

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Summary

A Savannah location offers the following advantages for the manufacture of pumps:

1. An opportunity to increase market penetration and profit in the more than $50 million annual southeastern market for pumps.

2. Competitive access to the $543 million national market for pumps and deepwater port access to a $29 million Latin American export market for pumps and pump parts.

3. Skilled, productive labor at a total cost ranging from $300,000 to $1 million less on sales of $10 million than for similar labor at plants in the major pump-producing areas.

4. Local foundries which produce high-quality, competitively priced castings in several alloys.

5. Nearby sources of castings and most other raw materials for pump manufacturing.

6. A location on the Intracoastal Waterway which assures good service and low delivery cost on materials brought in from the northeastern port areas, plus deepwater port facilities providing access to imported raw materials and abundant warehousing for supplies.

MARKETS FOR PUMPS

A pump manufacturing plant in Savannah should be in a position to compete successfully with existing major pump plants in selling to the national market, which totaled approximately $534 million in 1963. It would have the important advantage of lower production costs -- principally lower labor costs as discussed in the next section. Access to Latin America through the Port of Savannah provides an opportunity to serve a $29 million export market which can be more conveniently reached from Savannah than from the present major producing areas.

Management of a Savannah plant is likely to place most emphasis on selling to the large and growing southeastern market for pumps, however. In 1963, Georgia and the five surrounding states -- Alabama, Florida, North Carolina, South Carolina, and Tennessee -- comprised a domestic market for pumps of more than $50 million.

Lower delivery costs to customers in the southeastern region would give a Savannah manufacturer a distinct marketing advantage over existing plants. On annual southeastern sales of $5 million,[1/] delivery costs would be approximately $50,000 less than from plants in Chicago, Milwaukee, and Seneca Falls, New York. Depending on whether the savings accrue to the customer or the manufacturer for particular kinds of orders, the Savannah plant's dollar advantage could be used to increase either market penetration in the Southeast or profits on sales.

The $50 million six-state southeastern market actually embraces four separate markets as follows:

Industrial pumps (SIC 35611)	$27,500,000
Hydraulic fluid power pumps and motors and vacuum pumps (SIC 35612)	10,600,000
Domestic water systems and pumps (SIC 35614)	14,400,000
Other pumps, including oil well and oil field pumps and appliance pumps (SIC 35615)	1,100,000
Total	$53,600,000

1/ Total annual sales for a hypothetical plant are set at $10 million -- $5 million in the southeastern market.

The national domestic market for industrial pumps was $262 million in 1963. (See Appendix.) Two market indicators lead to the conclusion that the six-state area purchased at least $27.5 million worth of industrial pumps -- 10.5% of national domestic sales:

1. The area's growing proportion of total U. S. manufacturing employment reached 11.5% in 1963:

	Total Manufacturing Employment[1/]	
	1963	1958
Six-state area	1,957,000	1,687,000
United States	17,065,000	16,025,000
Six states as % of U. S.	11.5%	10.5%

2. The area's industrial water usage, including recirculation or reuse, is large and growing, having reached 10.6% of the national industrial usage in 1959:

	Gross Water Usage[2/] (in billions of gallons)	
	1959	1954
Six-state area	2,822	1,685
United States	26,621	21,042
Six states as % of U. S.	10.6%	8.0%

Specific southeastern industries which are markets for pumps include those producing paper and paperboard, synthetic fibers, primary metals, finished textiles, kaolin and other minerals, and chemicals, as well as the utilities and the petroleum products pipeline systems.

The national domestic market for hydraulic fluid power pumps and motors and vacuum pumps was almost $133 million in 1963. (See Appendix.) The following data indicate that the six-state area purchased at least 8% of the total, or $10.6 million:

1/ U. S. Bureau of the Census, 1963 Census of Manufactures, Preliminary Report.

2/ U. S. Bureau of the Census, U. S. Census of Manufactures: 1958, "Industrial Water Use," Subject Report MC58(1)-11, 1961.

1. The six-state area wholesaled 8.0% of the nation's commercial and industrial machinery, equipment, and supplies (SIC 5082) in 1958:

	Wholesale Sales[1/]
Six-state area	$ 1,465,073,000
United States	18,332,247,000
Six states as % of U. S.	8.0%

2. The value of construction contracts[2/] in the six-state area represented 12.4% of the national total in 1963:

	Value of Construction Contracts[3/]
Six-state area	$ 5,652,000,000
United States	45,546,000,000
Six states as % of U. S.	12.4%

The national market for domestic water pumps was $72.2 million in 1963. (See Appendix.) The six-state area generally accounts for about 20% of national sales in this category, or $14.4 million in 1963. Data for 1961 are as follows:

	Number of Pumps[4/]
Six-state area	149,000
United States	753,000
Six states as % of U. S.	19.8%

The national market for other pumps, including oil well and oil field pumps, appliance pumps, and industrial spraying equipment, totaled $56.2 million in 1963. (See Appendix.) No attempt was made to estimate the six-state area's portion of the national market. It is believed to be small but was assumed to be at least 2%, or $1.1 million.

1/ U. S. Bureau of the Census, 1958 Census of Business -- Wholesale Trade.

2/ The Business and Defense Services Administration publication, Pumps, Compressors, Fans and Blowers Industries, ER 60-68, indicates a correlation between sales of these products and new construction.

3/ U. S. Bureau of the Census, Statistical Abstract of the United States, 1964, Washington, D. C., 1964.

4/ U. S. Bureau of the Census, Current Industrial Reports, August 31, 1962, M35G.1(61)-1.

Exports of pumps and pump parts totaled $103 million in 1963.[1/] Major export markets include Canada, Mexico, and Venezuela. Total exports to Latin American countries reach $29 million in 1963, of which $18 million was pumps and $11 million was pump parts. Major kinds exported to Latin America include centrifugal ($7 million), reciprocating ($3 million), and turbine ($2 million).

1/ U. S. Bureau of the Census, United States Export Statistics, 1963 Annual, Report FT 410.

LABOR COSTS AND PRODUCTIVITY

Manufacturers of pumps can expect lower production labor costs in Savannah than in the existing major pump-producing areas of the Northeast, Midwest, and West. Existing pump manufacturers in Georgia produce far more product per dollar of production wages expended than do manufacturers in the major producing states. A typical plant in Savannah with annual shipments of $10 million would expend from 23% to 45% less for production labor costs than would a typical plant in the major producing states. Data which lead to these conclusions are shown in Table 1.

Table 1

COMPARATIVE PRODUCTION LABOR COSTS IN GEORGIA AND MAJOR PUMP-PRODUCING STATES

Producing State	Value of Shipments per Dollar of Production Wages Expended	Total Production Labor Costs for Shipments of $10 Million
Pennsylvania	$ 4.492	$2,226,180
Massachusetts	5.272	1,896,813
Michigan	5.305	1,885,014
Ohio	5.450	1,834,862
Wisconsin	6.006	1,665,002
New York	6.051	1,652,619
Texas	6.918	1,445,504
Illinois	7.031	1,442,273
New Jersey	7.220	1,385,042
Indiana	7.472	1,338,330
California	7.525	1,328,330
GEORGIA	12.759	783,760

Source: Calculated from data in U. S. Census of Manufactures.

A new Savannah plant would have the obvious advantage of more modern production equipment, but it would also have the advantage of lower wages and higher productivity if properly managed. Average metalworking wages in Savannah are relatively high for the state, because firms in the city are primarily

AVAILABILITY OF RAW MATERIALS

Adequate sources of most raw materials required for the manufacture of pumps may be found in Georgia and the surrounding states. Savannah produces high-quality ductile iron castings and other inputs. The city is a warehousing center, and its location on the Intracoastal Waterway assures low delivery costs on raw materials brought in from northeastern port areas. Its deepwater port facilities give access to imported raw materials.

The following materials are produced in the three-state area comprising Alabama, Georgia, and Tennessee:

- Steel plates (sheared and universal)
- Hot rolled sheets, strip, bars
- Wire rods
- Cold finished bars, rolled sheets
- Galvanized strip, sheets
- Spun and extruded copper parts
- Aluminum extrusions, wire, rod, sheets, plates, foil
- Castings (iron, steel, copper, aluminum, and alloys)
- Closed die drip forgings
- Fractional horsepower electric motors
- Precision anti-friction ball thrust bearings
- Precision ferrous and nonferrous balls
- Metal tanks (pressure and nonpressure)
- Fabricated metal pipe, valves, fittings
- Switches, relays, regulators, and other electrical control equipment
- Jigs, fixtures, punches, dies, and cutting and forming tools

Although the area also produces some nuts, bolts, screw machine products, and parts and attachments for pumps, a pump manufacturer located in Savannah is likely to purchase most of these items from northern manufacturers. Integral horsepower motors, a significant material input, are not produced in the area. Since producers ship these motors with freight allowed, however, a Savannah plant would be at no freight disadvantage when purchasing them outside the area.

The pump industry's largest dollar volume raw material input -- purchased rough and semifinished castings -- accounts for 17% of total purchases of materials, parts, containers, and supplies.[1/] In addition to a few dozen grey iron foundries, there are 10 noncaptive foundries in Georgia or in cities on Georgia's borders that can supply high-quality alloy castings and have experience in working with three or more alloys. One located in Savannah is known as the

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1/ U. S. Census of Manufactures.

most mechanized foundry in the South and has a reputation for high-quality work at competitive prices. Its customers include Allis-Chalmers Manufacturing Company, Caterpillar Tractor Company, and Ford Motor Company. Some 20 of the military specifications which can be handled by the 10 foundries are listed below:

ASTM A-48 Class 35 Test Bar B	High-test grey iron
ASTM A-339 Grade 80-60-03	Ductile iron
ASTM A-339 Grade 60-45-10	Ductile iron
ASTM A-48 Class 50	Meehanite GA cast iron
ACI CF-8M (Type 316)	Sulphite-resistant steel
ASTM A-296 Type CE-30	Corrosion-resistant steel
ACI CF-20 (AISI-302)	Corrosion-resistant steel
U. S. Navy Mil. Spec. 15083 Class B	Soft steel
ASTM A-217-55 Grade C5	Chrome-molybdenum steel
Hydraulic Institute Type 6, FA-20, CN-7M, C-20	Sulfuric-resistant stainless steel
ASTM A-296 Type CA-15	Chromium steel
ASTM B-144 Class 3A	Phosphor bronze
ASTM B-143 Alloy 2A	Bronze Compo. "M"
ASTM B-143-52 Alloy 1A	Bronze Compo. "G"
U. S. Navy Mil. Spec. M-16576	Navy Bronze Compo. "G"
ASTM B-62	Bronze "ounce" metal
ASTM B-148 Alloy D Grade D	Nickel-aluminum-bronze
Mil. Spec. QQ-N-288 Comp. A	Monel
Acid Metal Bronze	87%-89% Cu, 9%-11% Sn, 1.5%-2.5% Pb
Monel	60% Ni, 23% Cu

All kinds of metallurgical consulting and non-destructive testing facilities are available at foundries and laboratories located in Georgia.

Appendix

NATIONAL PUMP PRODUCTION AND DOMESTIC MARKET
(in thousands of dollars)

SIC No.	Description	1962 Shipments[1]	1963 Shipments	1963 Domestic Sales[4]
35611	Industrial pumps	$306,592	$313,990[2]	$262,100
35612	Hydraulic fluid power pumps and motors and vacuum pumps	102,232	135,210[2]	132,500
35615	Pumps, n.e.c. (including oil well and oil field pumps)	61,206	62,008[2]	56,200
	Subtotal	$470,030	$511,208	$451,800
35614	Domestic water systems and pumps (farm pumps)	67,338	73,582[3]	72,200
	Total	$537,368	$584,790	$534,000

1/ U. S. Bureau of the Census, Annual Survey of Manufactures, 1962.

2/ U. S. Bureau of the Census, Current Industrial Reports, October 14, 1964, M 35P (63) - 1.

3/ U. S. Bureau of the Census, Current Industrial Reports, April 9, 1964, M 35G (63) - 13.

4/ Estimate based on United States Export Statistics, Report FT 410, 1963 Annual, U. S. Bureau of the Census.